

PAINT PARTICLE DEFLECTOR

The first application claimed priority based on provisional application 60/281,719 filed on April 06, 2001; however, this priority has become null and void because of the following circumstances. This application was assigned an Application No. of 10/115926, a filing date of 04/05/2002 and an Art Unit of 3765. The Attorney inadvertently overlooked a requirement that Substitute Drawings were required under 37 CFR 1.84 and a two month period for response from the date of the notice 05/15/2002. The Attorney only discovered the error by chance. He inquired from Art Unit 3765 about a month ago why he was not getting any response to the patent application, and as explained above, he discovered the facts. Accordingly, while he never did get an official Notice of Abandonment of Application 10/115926, he presumes it to be so. Therefore the present application cannot be considered a Continuation application of Application No. 10/115,926

This invention is directed to a device attached to a conventional shielding mask, and employs jets of air to deflect paint particles or the like from the mask.

BACKGROUND OF THE INVENTION

There are a number of protective masks equipped with lenses or glass wherein a frame is provided with a hose for supplying jets of compressed fluid for removal and deflection of gases, particles, etc. from the mask and its shield as exemplified by the patents cited below.

U.S. Pat. 2,402, 820, a welder's mask, shows a shield with a window for filtering undesirable light rays from the flame of the welding apparatus. An air supply is arranged at the rear of the mask and attached to the head frame. The air supply is delivered by a small air tube to the front portion of the head band and distributed through a plenum tube extending along the head band from one side to the other. The plenum has two series of small openings, one series directed upwardly and one downwardly, the holes of each series being staggered. This type of delivery of air has an inductive effect and prevents the induction of outside air into the mask. The air also prevents defogging.

U.S. Pat. 2,485,117 is a painter's mask. In this device an air line is used to supply fresh air to the user. The mask is light weight and impervious to air with clips to secure the hood to the back of the head. Its special use is to protect the painter from inhaling spray and provide a vision opening covered by a transparent cellulose sheet, which is held sealed against the mask opening. The sheet is wound on a top spool. The bottom spool has a turning key so that when the sheet is coated with paint that impairs vision the key is turned to provide a fresh, clean sheet. When the roll has been exhausted, it can be replaced by a fresh roll.

U.S. Pat. 2,971,196 teaches goggles with an attached washing means. The device is intended for harness racing drivers who encounter mud on the race track, which is thrown up on their faces. There is a frame for the goggles and a strap for attachment to the head. A tubular header is attached to the frame with a plurality of orifices spaced along the header. Pressurized water is delivered downwardly against the outer face of the goggles to wash off the mud. A knapsack carried on the driver's back and a valve held in the driver's hand initiates the flushing action.

U.S. Pat. 3,231,987 describes a goggle construction for dispersing dust particles from the openings of the goggles wherein cylindrical walls extend about open vision apertures behind which are the goggles. The outer ends of the walls are provided with threaded counterbores. A threaded adapter ring engages each of the counterbores and is seated against the shoulder of the cylindrical wall. Through the wall and ring run header passages. Extending from the header is a longitudinal manifold passage. A delivery conduit clipped to a goggle strap delivers air through the manifold to a series of circumferential bores on the adapter ring will deliver a cylindrical curtain of air around the vision openings while the inclined bores will deliver a cone shaped curtain of air. In this way a heavy earth-moving equipment operator encountering dust and other foreign particles moving toward the goggle openings will have the same deflected outwardly and forwardly of the goggle openings. Additionally the device will prevent dust adherence to the goggles.

U.S. Pat. 3,921,223 depicts an air shield for welders exposed to noxious fumes. A conduit in the form of a yoke is worn around the neck, and is connected to a valve and flexible tube to a source of pressurized air. An open end of the yoke is spanned by a transverse pipe having one or more rows of perforations. The pipe is rotatable so that the air can be directed at any desired angle with respect to the body of the operator. When the air shield is connected it provides a multiplicity of jets of air moving outwardly to screen the face of the wearer from the rising fumes. The yoke is easily disconnected, and even after mask removal, the air shield is still effective.

U.S. Pat. 3,922,722 is a device for protecting a welding operator's respiratory organs from aerosols. The device comprises a housing having a light filter. Below the filter and outside of the housing is a perforated pipe. The pipe has a length about equal to the length of the filter. Compressed air from an air duct located on the outside of the housing blows the aerosols up and away from the housing.

U.S. Pat. 4,571,741 teaches an ergonomic helmet that comprises a vizor displaceable between a lowered and raised position, and a system for supplying air to the helmet by an external air source. The helmet has a control ensuring ventilation and manipulation of the vizor simultaneously. Normal ventilation ensues with lowering of the helmet, and

reduced air admission takes place when the helmet is raised.

The devices enumerated above, while useful for their intended purpose would not be very effective for falling paint particles. For one, a number of these devices direct air within the helmet to prevent defogging of the lens or glass. Another apparatus uses goggles with a ring of perforations supported around the head to direct washing fluid downwardly towards the upper part of the goggles. Such washing would only smear paint particles which would have been delivered to the goggles. Another device with goggles uses two air flows. One delivers a cylindrical curtain of air outwardly, and the other flow delivers air flow conically so as to deflect dust particles outwardly from the goggles and prevent dust from adhering thereon. While this device functions well with a randomized circulation of dust particles, wherein the vision openings are afforded a certain amount of protection because the vision openings are within enclosed cylindrical walls, the presence of heavier paint particles falling vertically requires greater air contact and higher pressure than provided by the above described flow. Similarly upwardly and outwardly flowing jets of air that prevent upwardly flowing fumes of gas from reaching the shielding masks require much less pressure to deflect the fumes and gases than downwardly flowing paint particles which are aided by gravitational force, whereas the lighter gases must also contend with gravitation.

Accordingly it is an object of this invention to provide a paint particle deflector which would efficiently deflect paint particles from a shielding mask.

It is also an object of this invention to fit a protective mask worn by craftsmen such as painters with an attachment that furnishes a pressurized air shield that will readily deflect paint particles from the mask.

It is still an object of this invention to adequately insure the safety of the user by enabling unimpaired vision through the glass or lens of the mask while engaged in spray painting.

It is additionally an object of this invention to reduce the downtime of operation by eliminating the necessity of halting work to clean the mask shield.

SUMMARY OF THE INVENTION

The apparatus of this invention is adapted to be attached to a conventional eye shielding mask having a respirator unit. The device clips on to the top of a face shield housing and delivers compressed air through a plurality of atomized air tips. The air is delivered downwardly and forwardly of the face shield, and keeps downwardly falling harmful, light impairing particles and fluids from reaching the shield lens. Using the air deflector in combination with the shielding mask is to improve the safety of the worker, who is often averse to using the mask because of sight impairment and consequent danger from missteps, especially when working on a scaffold and engaging in spray painting. The paint particle deflector helps to allay the painter's misgivings about impaired vision, and is cost effective, for the workman

need not interrupt operations to effectuate shield cleaning.

DESCRIPTION OF THE DRAWINGS

Figure 1 is a perspective view of the eye shielding mask with the air deflector.

Figure 2 is a sectional view taken on line 2-2 of Fig. 1.

Figure 3 is a plan view of the mask showing the arrangement of the atomizers on the mask.

Figure 4 is a side view showing the mask and the air deflector placed over and in front thereof.

Figure 5 is a rear view showing the straps connected to the heagonal pies

DETAILED DESCRIPTION OF THE INVENTION

Fig 1 shows a rubber frame that constitutes a shielding mask 1 having a gasket 2. Adhesively fitterd within the gasket is a concave lens or glass shield 3. At the sides near the lower end of the mask adjacent the gasket are two cylindrical projections 4 that contain an air inlets 5. Between the two outlets and front and center is a larger cylindrical projection 6 that is enclosed by a filter 7 for receiving incoming air. The filter projects inwardly and a nose piece 8 is attached around the thinner edge of the cylinder. Integral with an inner edge of the gasket are 6 tabs 9 to which an equal number of adjustable straps 10 are secured by a conventiomal snap button 10a. There are two straps on each upper and lower side and two straps extend from the top. All the straps intersect at a somewhat hexagonically shaped piece 11 located about the mid region in the back of the head. The straps secure the mask to the head. A 1/4" copper tube 12 is fastened in an arc with spring clips 13 around the upper periphery of the gasket. Extending from the tube are five arcuate spaced atomizer tips 14 having a orifices about .012" to .024 " depending on the viscosity of the paint material. Coupled to the tubing is an airline 15 that delivers 2-4 atm. The source of the air is a compressor 16 or 4 to 8 hour rechargeable power pack 17 which can be worn around the waist by attaching the pack or compressor to a belt. The atomizers extend in front of the glass and deliver pressurized air directly downwzrd so that any falling particles or fluid will be rapidly deflected from the glass or lens shield. A valve 19 in the air line above the compressor or pressure pack

In operation, the workman adjusts the shielding mask on his face and head making sure that all the respirator units are functioning properly. He then fastens the belt with the battery pack or compressor secured thereon and switches on the battery pack to start the air flow. He checks to see if the air is being delivered to the atomizers fastened to deliver pressurized air in front of the shield and if there is air flow commences to paint. If it is found that paint particles are not being deflected completely from the shield, he opens the valve to adjust the rate of flow until a

MM ————— satisfactory rate has been achieved. —————

12/1/03

It should be noted that although a preferred embodiment of this invention has been disclosed, it is to be understood that various modifications that would occur to one skilled in the art could be made without departing from the subject matter as defined by the following claims.